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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,506	12/14/2006	Agnes Bauk	20496-486	6057
21890	7590	01/21/2010		
PROSKAUER ROSE LLP One International Place Boston, MA 02110			EXAMINER NGUYEN, COLETTE B	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 01/21/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

bdonovan@proskauer.com  
mahmed@proskauer.com  
NYPatentAdmin@proskauer.com

# Office Action Summary

**Application No.**

10/551,506

**Applicant(s)**

BAUK ET AL.

**Examiner**

COLETTE NGUYEN

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Status of the application***

*RCE filed on 12/23/09*

*Claim 1 is amended. Claims 1 to 23 are presented for further examination*

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **12/23/09** has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. **Claims 1 to 23** are rejected under 35 U.S.C. 103(a) as obvious over Zhang Weiji et al. (CN 1281906) in view of Schummer et al. (US4,605,449) and Nakasugi et al. (US4,138,278)
6. **Regarding claims 1, 3-8.** Weiji (906) discloses a steel sheet for the production of a high strength, high toughness, and corrosion resistant steel mooring chain. He does not specify low temperature. Schummer (449) teaches a steel sheet for producing a rolled steel with high weld-ability, high yield strength with good notch impact toughness at very low temperature. Nagasugi (278) teaches a steel sheet with excellent toughness at low temperature with the weight percent as follows:

	Applicant	Nakasugi	Schummer	Wenji
<b>C</b>	0.16-0.25	0.01-0.13%	0.08-20%	0.25-0.33
<b>Si</b>	0.10-0.30	0.8-1.8%	0.20-0.40	0.15-0.30
<b>Mn</b>	0.80-1.60	0.01-0.08%	1.60%	1.45-1.75%
<b>P</b>	≤0.020%	silent	silent	≤0.020%
<b>S</b>	≤0.015%	<0.015	silent	≤0.015%
<b>Cr</b>	0.40 - 0.80%	<0.6%	silent	0.90-1.40%
<b>Mo</b>	0.30-0.50%	<0.015	0-0.3%	0.45-0.65%
<b>Ni</b>	0.70-1.20%	0.2-0.4	below 9%	1.00-1.20%
<b>Al</b>	0.020-0.06- %	0.08-0.4	0.03-0.30%	0.020-0.05%
<b>N</b>	0.007- 0.018%	0.001-0.009	silent	≤0.009%
<b>Nb</b>	0.02-0.07%	silent	0-0.3%	0.02-0.06%
The remainder being iron and impurities				

From the information given, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teaching of Schummer and Nakasugi of the carbon percent of lesser than 0.25-0.33% and the teaching of Nakasugi of Cr content of no more than 0.6% with the teaching of Weiji of a chain composition as Schummer discloses that to “*have high notch impact toughness throughout the cross section, and be easily welded, the carbon level is preferred to be less than 0.2% by weight*” (Col1, line 65-68). The claimed steel composition is obvious and encompassed by Wenji in view of Schummer and Nakasugi.

7. Regarding claim 2, Weiji in view of Schummer and Nkasugi disclose the steel sheet of claim 1. Wenji teaches C content of 25-33%, Schummer teaches C content of 0.08-0.20%, preferably 0.16 to 0.20%. It would have been obvious for one of ordinary skill in the art at the time of the invention to improve the steel sheet of Wenji, by

lowering the carbon content as specifying by Schummer to have high notch impact toughness (especially for a chain).

8. Regarding claim 9. Schummer teaches that " the steel sheet has a grain structure in the finished product which is extremely fine and extends throughout the cross section..." (Col3, line, 58-63). Both Schummer and Wenji do not specify the grain size is finer than ASTM 10. However as the steel sheet components have overlapped weight percents, the steel sheet of Weiji in view of Schummer would inherently have the same characteristics as the instant claim.

9. Regarding claim 10. Weiji in view of Schummer and Nakasugi disclose a steel composition according to claim 1 for the production of high-strength components by cold forming with subsequent temper-hardening. (Schummer, Col.3, ln 48,and col.4, line 69) And (Wenji on page 2 and on page 5)

10. Regarding claims 11,12,13,14,15. Weiji in view of Schummer and Nakasugi teach the use of these steel according as claim 10 wherein the components are means for the carrying, pulling, lifting, conveying or securing of loads, means for the connections of structural elements, chains which are round and welded.

11. Regarding claims 16,17,18. Weiji discloses the tensile strength of level four mooring chain of more than 860 MPa. As tensile strength of the chain is an optimized parameter, it would have been obvious for one of ordinary skill in the art at the time of the invention to experiment with component weight percent to claim a higher tensile strength such as 1,200 MPa, 1,550 MPa, 1,600 MPa. And tensile strength is an

inherent characteristic of the steel sheet with component weight percents that Wenji in view of Schummer already disclose.

12. Regarding claim 19, Weiji in view of Schummer disclose a use according to claim 10. Weiji discloses a tensile strength of more than 860 MPa, and he is silent about the FATT of the component at -60C. Schummer on the other hand discloses the fracture appearance transition temperature FATT of the components is at least -60C (Schummer, col4, lin 42)

13. Regarding claim 20, Weiji in view of Schummer and Nakasugi disclose a use according to claim 10. Notch impact is the same as Charpy impact, and Schummer teaches a Charpy V value of 35 J. Wenji teaches a V value of 110-150J. As the steel sheet of Weiji is modified to have less Carbon content the notch impact value is now should be between 35 and 110. Notch impact working value is an inherent characteristic of the steel sheet, the steel sheet of Wenji in view of Schummer would have similar notch impact as claimed.

14. Regarding claims 21 and 22, while Weiji and Schummer and Nkasugi do not disclose specific crack initiation toughness, as the composition of the steel taught by Weiji in view of Schummer, and the strength, notch impact, and elongation characteristics are similar, it is expected that the crack initiation toughness would also be commensurate.

15. Regarding claim 23, Schummer discloses an elongation at break of more than 20. (Schummer, table 1,2, elongation 25-36%)

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-23 have been considered and are persuasive therefore the rejections from previous final office action are now withdrawn. However the claims are rejected on new grounds with new prior arts as stated.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLETTE NGUYEN whose telephone number is (571)270-5831. The examiner can normally be reached on Monday-Thursday, 10:00-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on (571)-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a



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/COLETTE NGUYEN/  
Examiner, Art Unit 1793

January 12, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793